



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,567	05/10/2001	Gerhard Gille	MO-6323/STA-	6933
157	7590	10/25/2004	EXAMINER	
BAYER MATERIAL SCIENCE LLC 100 BAYER ROAD PITTSBURGH, PA 15205			WILKINS III, HARRY D	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 10/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/831,567

Applicant(s)

GILLE ET AL.

Examiner

Harry D Wilkins, III

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004 and 30 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The previous rejection grounds have been withdrawn in view of Applicant's amendment incorporating limitations from claim 15 into claim 10.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 30 June 2004 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10-14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Alonso et al (XP-000874467) in view of Felten et al (FR 2,294,133).

Alonso et al teach the invention substantially as claimed. Alonso et al teach (see abstract) a method of forming tungsten carbides that includes gas-phase carburization of tungsten precursor compound (tungsten trioxide) at temperatures of 700-1100°C, which overlaps the claimed temperature range of 850 to 950°C. The examples

disclosed by Alonso et al contain 39, 22 and 0% CO₂. Though Alonso et al do not teach that the CO₂ content is above the Boudouard equilibrium content, based on the disclosure in the specification in Example 1 (page 8), 3% CO₂ is above this value, thus, 39 and 22% are also above the Boudouard equilibrium content.

However, Alonso et al do not teach that the carbon activity is between 0.4 to less than 1.

The specific examples disclosed by Alonso et al have carbon activities, calculated from Applicant's formula on page 3 of the specification, that are 0.026 (61 wt% CO), 0.077 (78 wt% CO) and essentially infinity (100 wt% CO). Thus, Alonso et al teach a broad range for the carbon activity that encompasses the claimed range. Changes in temperatures, concentrations or other process conditions of an old process do not impart patentability unless the recited ranges are critical, i.e., they produce a new and unexpected result. In re Aller et al (CCPA 1955) 220 F2d 454, 105 USPQ 233.

Applicant can overcome this rejection by showing that superior results are obtained only within the claimed range, and that outside of the claimed range, the superior results are not obtained. If the Applicant can show, through experimental data, that at values on either side of the claimed range of the carbon activity, such as 0.3 and 1.1, then this rejection would be overcome.

Alonso et al do not teach that after the powder is carburized, it is subjected to a heat treatment at 1150-1800°C.

Felten et al (FR 2,294,133) teach (see page 2) that the reaction $\text{WO}_3 + 4\text{C} \rightarrow \text{WC} + 3\text{CO}$ proceeds at 1200-1500°C. Thus, if treated at this temperature, any WO_3 would be converted to WC.

Therefore, it would have been obvious to one of ordinary skill in the art to have heat treated the powder of Alonso et al at 1150-1800°C as claimed in order to ensure that all of the precursor WO_3 has been converted to WC.

Regarding claim 11, see above discussion of carbon activity.

Regarding claim 12, Alonso et al teach (see page 145) that powders are produced at 900 and 1100°C and are shown in Figure 8. Therefore, Alonso et al teach that the carburization occurs at 900°C.

Regarding claim 13, Alonso et al teach (see abstract) that the carburization treatment time is 6 hours.

Regarding claim 14, Alonso et al teach (see abstract) that the precursor material is tungsten trioxide (WO_3).

Response to Arguments

Applicant's arguments filed 30 June 2004 have been fully considered but they are not persuasive. Applicant has argued that it was known by one skilled in the art that the specific surface area of powders made by thermal decomposition depends on the decomposition temperature as supported by "Chemistry of Powder Production".

In response, while this is known, the specific facts in the present case do not support Applicant's position. As can be inferred from the graphs of Chemistry of Powder Production", the size of the particles greatly reduces (i.e.-high specific surface area) at

the temperature at which the thermal decomposition occurs, but at temperatures above the thermal decomposition, the size of the particles increases. In Fig. 4.15, the reaction is for the decomposition of $\text{Mg}(\text{OH})_2$ to MgO . However, Felten et al and Alonso et al are related to the decomposition of WO_3 to WC . Since this is a different reaction, it would have a different reaction temperature. Thus, one of ordinary skill in the art would have expected the thermal decomposition step of Felten et al to not increase the size of the particles because it occurs at the temperature of the reaction, not above the reaction temperature. Indeed, even Felten et al discuss this (see middle of page 6 of translation) in that the final particle size after the thermal decomposition is approximately the same as the precursor particle size. Thus, Felten et al teach that the thermal decomposition reaction does not produce an increase in the size of the particles, and as such, the present invention does not provide any unexpected results as asserted by Applicant.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-Th 10:00am-8:30pm.

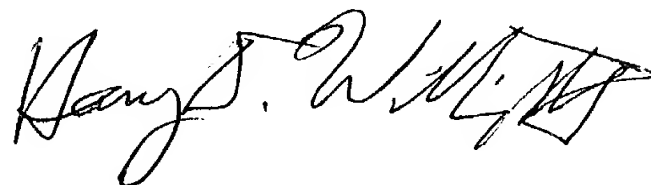
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry D Wilkins, III
Examiner
Art Unit 1742

hdw

A handwritten signature in black ink, appearing to read "Harry D. Wilkins, III". The signature is stylized with a large, looped "H" and a prominent "W".